UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,514	02/19/2002	Carl R. Merril	108026-00011	6684

6449 7590 07/15/2005

ROTHWELL, FIGG, ERNST & MANBECK, P.C.
1425 K STREET, N.W.
SUITE 800
WASHINGTON, DC 20005

EXAMINER	
PENG, BO	

ART UNIT	PAPER NUMBER
1648	

DATE MAILED: 07/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/926,514	MERRIL ET AL.	
	Examiner	Art Unit	
	Bo Peng	1648	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-13 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-13 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective because of missing signature of second inventor, Richard M. Carlton. Correction is required. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 8 is vague and indefinite in the citation "reduce the probability of an *Enterococcus faecium* colonization becoming an infection" since it is unclear how the probability is defined.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claim 1 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. A wild-type page of ENB6 and ENB13 can be found in nature. Products of nature do not constitute patentable subject matter under 35 U.S.C. § 101.

6. Amending claim 1 to "an isolated" and/or "purified" wild-type phage or similar language what is supported by the specification would overcome this rejection.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 2-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. First of all, Applicant fails to submit evidence that the ENB6 and ENB13 were deposited in ATCC in accordance with the Budapest Treaty. Since the biological material is essential to the claimed invention, it must be obtainable by repeatable method set forth in the specification or otherwise readily available to the public as specified in 37 CFR 1.809. Therefore, absent evidence of a publicly available deposit, one of skill in the art would not be able to practice the claimed invention without undue experimentation. Applicant is required to submit a declaration or a statement by an attorney of record over his or her signature and registration number, stating that the specific biological

materials will be irrevocably and without restriction or condition released to the public upon the issuance of a patent. See MPEP 2400-2411 as well as 37 CFR 1.809(d).

9. Secondly, claims 2-13 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for administering phages ENB6 and ENB13 to eliminate circulating VREF in mice, does not reasonably provide enablement for phages ENB6 and 13 to rescue a patient with VREF infection. The claimed method of treatment using phages ENB6 and ENB13 was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention in a patient.

"[T]o be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without □undue experimentation.'" *Genentech Inc. v. Novo Nordisk* 108 F.3d 1361, 1365, 42 USPQ2d 1001, 1004 (Fed. Cir. 1997); *In re Wright* 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993); See also *Amgen Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1212, 18 USPQ2d 1016, 1026 (Fed. Cir. 1991); *In re Fisher* 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970). Further, in *In re Wands* 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988) the court stated:

> Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized by the board in *Ex parte Forman* [230 USPQ 546, 547 (BdPatAppInt 1986)]. They include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

A conclusion of lack of enablement means that, based on the evidence regarding each of the above factors, the specification, at the time the application was filed, would not have taught

one skilled in the art how to make and/or use the full scope of the claimed invention without undue experimentation. *In re Wright*, 999 F.2d 1557,1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993).

10. Claims 2-7 are directed to a method of treating a patient with VREF infection comprising administering phages ENB6 and ENB13. Given the rapid clearance rate of the phages from the systemic circulation, the specification does not provide sufficient examples to teach how to establish and maintain effective titer of the phages in vivo. Although multiple administrations of the phages are suggested to be employed in a patient (line10, p.13), neither Applicant's specification nor the state of the prior art at the time the invention was made provides guidance as to teach how to practice multiple injections of the phages and what the outcomes of prolonged phage treatment in vivo are. It is known in the art that administering bacteriophages, such as phi X 174, into a patient can induce immune responses against them, resulting in the clearance of the phages (Pyun, 1989 and Wedgwood, 1975). The immune responses can directly affect the efficacy of phages ENB6 and ENB13 in vivo. Applicants' specification fails to teach what immune responses are induced by the phages ENB6 and ENB13 in vivo, and whether or not immune responses affect the efficacy of the phages ENB6 and ENB13 treatment in a patient, especially when multiple injections of phages are employed. Because of the absence of working examples providing evidence which is reasonably predictive that the claimed treatment using phages ENB6 and ENB13 is effective for in vivo use, and the lack of predictability in the art at the time the invention was made, an undue amount of experimentation would be required to practice the claimed method of treatment in a patient with a reasonable expectation of success.

11. *In re Fisher*, 166 USPQ 18 indicates that the more unpredictable an area is, the more specific enablement is necessary in order to satisfy the statute. It has been known to those skilled in the art that *Enterococci* use several methods of transmitting vancomycin resistance genes to other bacteria (Korff et al. 1998). There is some evidence that the drug-resistance genes of *Enterococcus* could be spread by bacteriophage mediated genetic exchange (Moellering, 1992 and Smith, 1972). This possibility is not well understood or carefully examined in the specification. The specification does not provide guidance and predictability in determining if phage-mediated genetic exchange could occur and lead to the spread of drug-resistance gene into other bacterial after "serial passage" of ENB6 and ENB13 in vivo. Because the invention is in a highly unpredictable art and while the level of skill of in the art may be high, the state of the prior art is unknown and untested, one skilled in the art cannot make and use the claimed invention as commensurate in scope with the claims without undue experimentation.

12. Claims 8-13 are directed to a method for reducing the probability of VREF colonization becoming an infection comprising administering phage ENB6 and ENB13. The specification, however, discloses a method of treating VREF in the circulation only. The colonized VREF has much greater concentration (or density) than free VREF in the circulation and may have altered physiology in vivo (Colvin, 1932). Given the rapid clearance rate of the phages from the systemic circulation and possibility of VREF re-colonization after treatment being stopped, it is not clear for one skilled in the art to know how to reduce the probability of VREF colonization becoming an infection with a reasonable expectation of success and without undue experimentation. Therefore, without sufficient guidance, one of skill in the art would not able to practice the claimed invention without undue experimentation.

The instant invention, based on the evidence as a whole, in light of the factors articulated by the court in *In re Wands*, lacks an enabling disclosure.

Conclusion

13. No claims are allowed.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bo Peng whose telephone number is 571-272-5542. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Housel can be reached on 571-272-0902. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

BP
July 7, 2005

JEFFREY STUCKER
PRIMARY EXAMINER